REMARKS

By way of introduction, the present invention as claimed in each of independent claims 1, 10, and 17 is directed to flow cytometers comprising "a signal processing part" that efficiently eliminates or reduces low frequency fluctuation signals caused by pulsating flows generated in a sample solution or sheath liquid (e.g., specification, page 2, line 30 to page 3, line 4). As further explained below, *Gontin* (U.S. Patent No. 5,844,685) does not teach or suggest such a signal processing part.

The fluctuation signals reduced or eliminated by the signal processing part of the claimed invention are extracted from electric signals that were obtained from optical information detected from particles in a sample solution (e.g., amended claim 1, lines 5-8; amended claim 10, lines 5-9; and amended claim 17, lines 5-9). Thus, these electric signals from which the fluctuation signals are extracted contain optical information about the particles under study.

In contrast, the only type of fluctuation described in the entirety of *Gontin* is the "random fluctuations in beam strength inherent in the laser source" (e.g., col. 24, lines 62-67; col. 30, lines 58-60). Such laser source fluctuations are entirely distinct from the type of pulsating flow fluctuation signals produced, for example, when a syringe driven by a stepping motor is used to deliver sample solution or sheath liquid to a sheath flow cell (e.g., specification, page 2, lines 3-28). Moreover, the random laser fluctuations described by *Gontin* are not extracted from electric signals that were obtained from optical information detected from particles in a sample solution, as required by each of independent claims 1, 10, and 17.

Objection to Drawings

The objection to FIGS. 1 and 5 for lacking descriptive legends in accordance with 37 CFR § 1.84(o) has been obviated by amendment. Accordingly, withdrawal of this ground of objection is respectfully requested.

Claim Rejections – 35 U.S.C. § 102(b)

The rejection of claims 1-17 and 23-28 under 35 U.S.C. § 102(b) as being anticipated by *Gontin* is respectfully traversed. As explained above, the "electric signals" recited in each of independent claims 1, 10, and 17 are obtained from optical information detected from particles in a sample solution. *Gontin* does not teach or suggest a signal processing part that extracts or eliminates fluctuation signals from such electric signals, as required by independent claims 1 and 10, respectively, nor does *Gontin* teach or suggest a signal processing part that processes such electric signals, as required by independent claim 17.

As explained above, the claimed invention provides a solution to a completely different problem—namely, the problem of fluctuation signals caused by pulsating flows of sample solution or sheath flow liquid—than the problem of random laser fluctuation described by *Gontin*. The problem addressed by the signal processing part of independent claims 1, 10, and 17 is described in the specification as follows (e.g., page 10, lines 4-17):

> In a method for delivering liquid in which a stepping motor is used as described above, the flow rate of the sample solution slightly changes in synchronization with the drive pulse to rotate the motor. When pulsating flows are generated in the sample solution flow, the base line of the detection signal fluctuates in synchronization with pulsating flows if the refractive index of the sample solution as a measuring subject and refractive index of the sheath liquid are different from each other. FIG.4 shows a manner in which the base line of the scattered light detection signal is fluctuating. If the baseline of the particle detection signal fluctuates, the characteristic parameters cannot be obtained correctly. This problem applies not only to a scattered light detection signal but also to a fluorescence detection signal. The signal processing circuit 8 to eliminate this kind of fluctuation signal is described below. The signal processing circuit 8 functions as a signal processing part of the invention.

A comparison of the scattergrams shown in FIGS. 13 and 14 of the specification clearly demonstrates that a scattergram produced by measuring particles without performing fluctuation signal eliminating processing (i.e., FIG. 13) results in unwanted

fluctuation signals being confused with the desired particle signals (e.g., page 15, line 20 to page 16, line 15).

As further explained in the specification, the use of the signal processing part of the claimed invention to address the above-described problem is particularly useful when the subjects to be analyzed are fine particles, microscopic bacteria or fine water-soluble particles in a dispersion medium such as alcohol, and/or when the refractive indices of the sample solution and sheath liquid are different (e.g., page 4, lines 24-29). *Gontin* is completely silent with respect to fluctuation signals caused by pulsating flows of sample solution or sheath flow liquid, and is likewise completely silent with respect to a solution to this problem. More specifically, *Gontin* is completely silent with respect to a signal processing part configured for reducing or eliminating such fluctuation signals, as required by each of independent claims 1, 10, and 17.

Gontin describes a reference laser beam sampling apparatus in which a beam sampler **222** functions to reflect a portion of the laser beam onto a reference detector **224** to obtain a reference beam for use by a difference circuit (e.g., FIG. 1; col. 24, lines 53-67). The reference detector **224** measures random fluctuations in beam strength inherent in laser source **131**, and uses this information to adjust measurements of beam absorption made by the detector system **164**. It is clear from the description in *Gontin* that fluctuations affecting only those portions of the laser beam that are filtered or masked by the aperture plates **195**, **201A** shown in FIG. 1—that is, the laser beam prior to its passage through flow cell **110**—receive the requisite processing required in order to be ignored by the difference circuit so as to increase the precision of the absorption measurement (e.g., col. 25, lines 5-8; col. 30, lines 60-65).

Gontin does not teach or suggest a part for extracting, eliminating or processing fluctuation signals from electric signals obtained from optical information detected from particles in a sample solution—that is, from electric signals generated <u>after</u> laser light has irradiated sample solution in a flow cell—as in the claimed invention. This fact is readily apparent in reference to FIG. 1 of *Gontin*, which clearly shows that beam sampler **222** is interposed between laser source **131** and flow cell **110**, and is not positioned for processing electric signals generated on the basis of optical information provided by the particles in flow cell **110**.

In short, *Gontin* does not teach or suggest a signal processing part that extracts or eliminates fluctuation signals from electric signals obtained from optical information detected from particles in a sample solution, as required by independent claims 1 and 10, nor does *Gontin* teach or suggest a signal processing part that processes such electric signals, as required by independent claim 17. For at least these reasons, Applicant respectfully submits that the claimed invention is neither anticipated by nor would have been obvious in view of *Gontin*. Accordingly, withdrawal of this ground of rejection is respectfully requested.

Allowable Subject Matter

The indication of allowable subject matter in dependent claims 18-22 is noted with appreciation. However, the objection to dependent claims 18-22 as being dependent upon a rejected base claim is respectfully traversed. Inasmuch as independent claim 17 from which the objected claims depend is neither anticipated by nor would have been obvious in view of *Gontin* for at least the reasons set forth above, Applicant respectfully submits that dependent claims 18-22 are allowable as written. Accordingly, withdrawal of this ground of objection is respectfully requested.

New Claim

New dependent claim 29 depends from independent claim 1. Inasmuch as independent claim 1 is neither anticipated by nor would have been obvious in view of *Gontin* for at least the reasons set forth above, Applicant respectfully submits that new dependent claim 29 is in condition for allowance as written.

Conclusion:

In view of the Remarks set forth above, Applicant respectfully submits that the claimed invention is in condition for allowance. Early notification to such effect is earnestly solicited.

If for any reason the Examiner feels that the above Remarks do not put the claims in condition to be allowed, and that a discussion would be helpful, it is

respectfully requested that the Examiner contact the undersigned agent directly at (312)-321-4257.

Respectfully submitted,

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Fig. 1

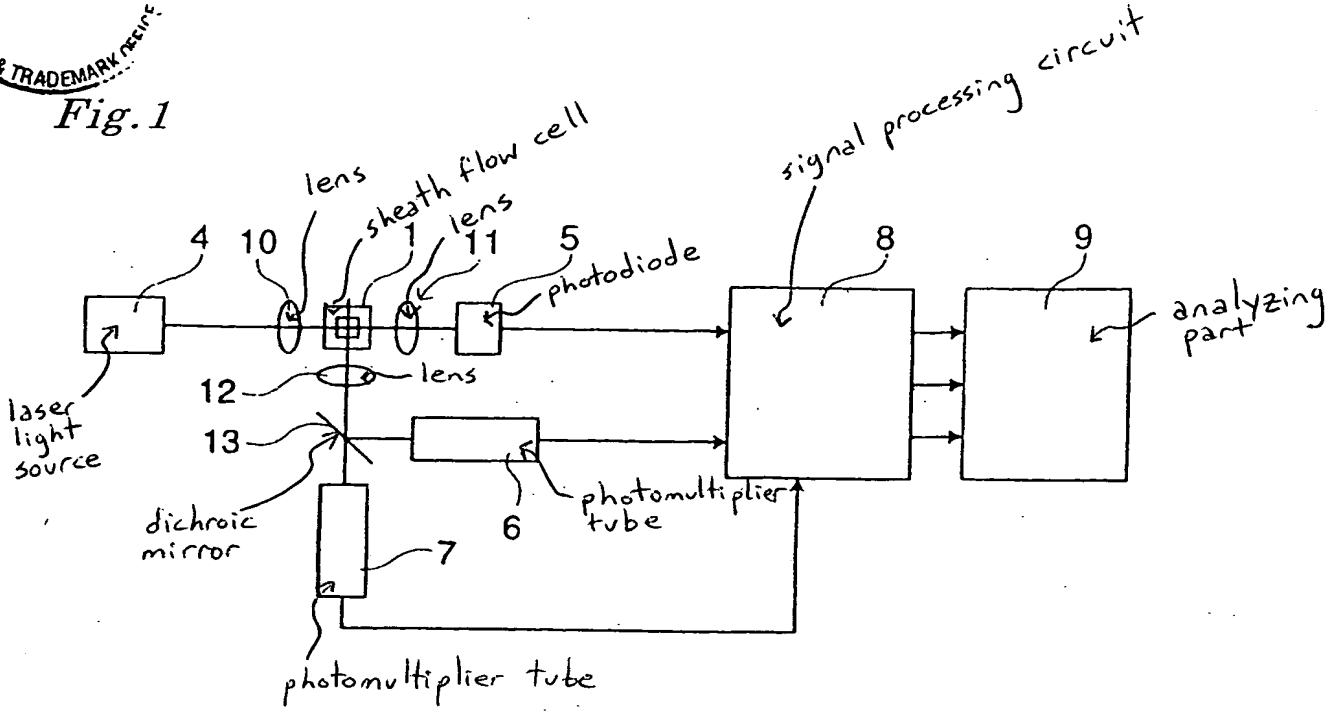

Fig. 2

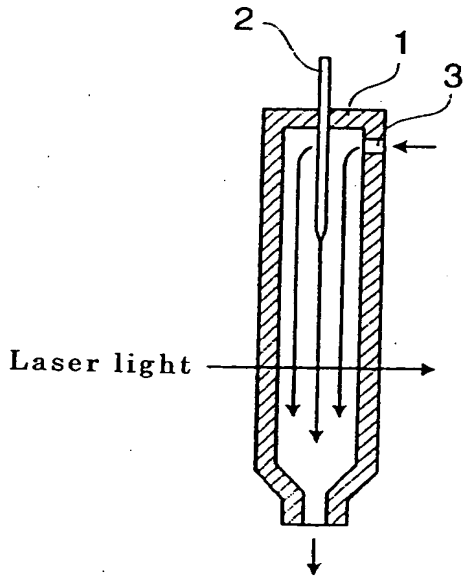

Fig. 5